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Magnetite-apatite Khanlogh deposit, northwest of Neyshabour: Mineralogy, texture and structure ,alteration, and determination of model

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Abstract: Khanlogh magnetite-apatite deposit is located in northwest of Neyshabour. This area is situated in Binaloud structural zone and east of Tertiary Quchan-Sabzevar magmatic arc. Geology of the area is dacitic volcanic rock intruded by Oligocene subvolcanic rocks with composition of quartz monzodiorite and granodiorite. Miocene sedimentary rocks trusted on them. The magmatism in the area shows characteristics of I-type granitoids and related to subduction zone. Mineralization occurred in the form of vein and veinlet that is hosted by subvolcanic rocks. Veinlet, brecciate, massive, open space filling, and needle-like structures and textures is observed. Magnetite (low Ti, V, and S) and hydroxyl apatite associated with calcite, epidote, quartz, pyroxene, and chlorite are the most important minerals at deposit accompanied by minor pyrite and chalcopyrite. Hematite and malachite are the main secondary minerals. The main alterations of this deposit are propylitic, carbonate, silicification, and argillic where propylitic and carbonate alteration zones are most abundant than other alterations. Tectonic setting, host rock, mineralogy, alteration, and structure and texture studies indicate the Khanlogh deposit has the most similarity with the Kiruna type deposits.

Keywords: *mineralogy; alteration; kiruna-type; khanlogh; quchan-sabzevar volcanic-plutonic belt.*

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